DOCUMENT RESUME

ED 249 128 SO 015 891

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TITLE Museums and Critical Thinking Skills for Students.
PUB DATE 84
NOTE 8p.
PUB TYPE Viewpoints (120)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Cognitive Processes; Convergent Thinking; Creative Thinking; Creativity; *Critical Thinking; Discovery Processes; Divergent Thinking; Educational Objectives; Elementary Secondary Education; Instructional Materials; Learning Activities; *Museums; Problem Solving; Realia; Teaching Methods
IDENTIFIERS Art Criticism

ABSTRACT

Museum objects can be the springboard for exercising critical thinking. There are four main thought processes associated with critical thinking: (1) fluent thinking, the ability to produce many ideas; (2) flexible thinking, the ability to view something in different ways; (3) original thinking, the ability to produce unique ideas; and (4) elaborative thinking, the ability to embellish. Educators working to develop problem-solving abilities must encourage students to search for and evaluate alternatives using these thought processes. Museums make excellent environments in which to allow for productive mental play. For example, museum objects can be examined and contemplated for the number of things they can tell us (fluency), other possible ways that this expression could be communicated (flexibility), the way in which someone might have chosen to communicate the same thing (originality), or the many details that the object includes which can tell us more than might have been perceived at first glance (elaborative). Also included are a discussion of the types of objectives covered by each of the six levels of the cognitive domain and an art critic learning activity. (RM)

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MUSEUMS AND CRITICAL THINKING SKILLS FOR STUDENTS

Alan Gartenhaus
1984

SP 015 891

Museums and Critical Thinking Skills for Students

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Most school educators are concerned that students develop their intellectual capabilities to the fullest extent, in addition to acquiring academic skills and factual knowledge. Therefore, schools encourage students to:

*become "active" learners
*apply the knowledge they acquire to a variety of situations
*be problem solvers
*deal with abstract concepts, and
*think creatively.

Museums, and other community resources which teach with objects, can be most useful to those who teach because these institutions create a learning environment which:

*requires the student to observe carefully
*allows for individual differences and points of view
*encourages imagination and the development of hypotheses
*forces the student to apply his/her knowledge, and
*provokes higher-level thought processes.

Thinking, and applying thought as stated above, exercises the "critical thinking skills" which allow us to make the best of our abilities. They assist us in figuring things out, making decisions, and imagining the consequences of thought or actions. And indeed, if thinking is viewed as a skill, then it ought to be deliberately exercised and developed.

By necessity and often by design, most class activities are convergent. Convergent activities are ones which focus to one, or a finite set of correct answers. These activities often test a student's recall of facts or literal comprehension. Convergent questions ask such things as: "Choose the correct response," or "Tell whether the statement is true or false," or "When was the battle of . . ." These convergent activities let the teacher know if the basic information is coming across and being learned. They do not demonstrate that a student understands the significance of the information, or that he or she can use the information in any other context.

The true test of our formal education comes when we are asked to use the information we have learned. This not only tells if we have retained the information, but whether or not we have "internalized" the information, making it part of our own character and resources. For it may not be as important to remember the dates of a battle as it is to understand the issues over which it was fought, and what lessons it may teach when applied to future, parallel situations.

To allow students to develop these more subjective and complex thinking abilities, educators must provide divergent classroom, and out of class, activities. Divergent activities allow for a variety of responses. They allow us to express our individuality as they do not have predetermined answers, but rely on our own perception and experiences. In this way they are much like life when it requires us to carry out such tasks as voting, managing our finances, or selecting a career.

Two types of divergent activities, or thinking exercises, are very useful in developing these critical thinking skills. They are creative thinking and problem-solving. Both can be accomplished in phases, applying the efforts of the former to the challenge of the latter.

- Creative Thinking -
There are four main thought processes generally associated with creative thinking. Each of these may be independent of, or exist in combination with, the others. All are vital to stimulating the production of creative thought.

  Fluent Thinking is the ability to produce a quantity of possibilities, ideas, consequences, or objects. In its initial stages little distinction is made with regard to the realistic or practical qualities of ideas. Fluent thinking is concerned with a quantity of ideas or variations. This type of thinking can be stimulated by questions which ask "How many _____ can you think of."

  Flexible Thinking is the ability to view something in many different ways. It is the type of mental gymnastics that allows us to turn an idea over and over, seeing it in many alternative lights. This type of thinking can be stimulated by questions asking "What is another way that . . ."

  Original Thinking is the ability to produce unusual, unique, or highly personal responses or ideas. It is the attribute of thinking most generally recognized as "creativity." This type of thinking can be stimulated by questions which ask students to "Think of _____ in a way that you feel no one else might."

  Elaborative Thinking is the ability to expand, develop, and embellish. It forces more detailed thought, and can often reveal the logic behind thoughts which are at first, difficult for others to fully understand. In this way it promotes communication, which is important to the development of creativity. This type of thinking can be stimulated by questions which ask "Tell me more . . ."

- Problem Solving -
Solving a problem requires finding an adequate solution or course of action. Refining the ability to solve problems means finding a <u>better</u> than adequate solution. This may, and often does involve thinking in ways associated with creativity, for the more alternatives one is aware of the more opportunities one has for discovering a "better" solution.

Most frequently, when confronted with a problem we work until we find an answer. While we may see some other possibilities we tend to be quickly convinced that we have discovered the correct way. At this point, the search for alternatives usually ends. Educators working to develop problem solving abilities must encourage students to persevere, and continue the search for alternatives.

Using the four thought processes associated with creative thinking as exercises can often increase the number of alternatives we are aware of. They can also lead us to new "systems of logic" which can allow us to see things in entirely different ways, possibly bringing to bear unforseen solutions.

At some point, often determined by time and energy, one must become practical and stop the search for alternatives. Then effort must be placed on deciding among the possibilities. This becomes a matter of logic, personal perspective, and judgement. Educators have traditionally supplied students with the alternatives, and focused their attention on the decision making process. While this is very important, emphasis should also be placed on the production of alternatives, for you can not improve your decisions by impoverishing your choices.

After a decision among alternatives has been reached, the same creativity exercises could be used to determine the appropriateness of the choice made. For example, students could go through the elaborative thinking exercise of imagining all of the details and consequences of his or her solution.

- Critical Thinking in Museums -
Critical thinking activities can, and should, be practiced in the classroom. Unfortunately, students often have learned that they are under constant scrutiny and pressure in this highly charged environment. They seem unable to truly relax enough to enjoy and take advantage of moments of intellectual and creative freedom.

For their general lack of familiarity, and the many provocative objects that they display, museums make excellent environments in which to allow for productive mental play. At the same time,

since the "things" found in museums can be appreciated from many disciplinary perspectives, their resources are versatile and adaptable to classroom topics being explored.

Museum objects can be the "springboard" into exercising creative thinking. Objects can be examined and contemplated for: the number of things they can tell us (fluency); the other possible ways that this expression could be communicated (flexibility); the way in which you might have chosen to communicate the same thing (originality); or the many details that the object includes, which can tell us more than we might perceive at first glance (elaborative).

Because museum objects are not directly linked to textbook lessons, and information gained from them depends upon personal observations and perceptions, they assist in allowing for individual points of view. Because, when in a museum, students are removed from the classroom, they can take more risks. Any untried idea presents risk. This is especially true in the judgmental atmosphere of grades and peer pressures. However, creativity and discovering alternatives depends on a willingness to try the untried, and to take chances.

Museums, and other institutions which collect and present objects, are not the final resting place for lifeless artifacts, or the efforts of long-dead artists, They are the collectors and presentors of objects from the real world, original and special, that provide "windows" into the reality of other times, other places, and other people. And the process of looking closely, interpreting their messages, making personal contact and effort, chancing a guess, and drawing significance from the experience is a qualitative method of developing the important skills of critical thinking.

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The taxonomy of educational objectives divides each domain into levels representing increasingly higher or more complex forms of behavior. Each of the three domains can be so divided, but the subdivisions of the cognitive domain are particularly useful in evaluating educational objectives and can help in selecting objectives that demand complex responses from learners.

The Cognitive Domain

6. Evaluation
5. Synthesis
4. Analysis
3. Application
2. Comprehension
1. Knowledge

Briefly, the types of objectives covered by each of these six levels are:

The lowest level, KNOWLEDGE, involves *recall* of specifics, universals, methods, and other items. For purposes of measurement, the recall situation requires very little more than bringing to mind an appropriate response. The other five levels necessitate some form of intellectual ability or skill, but the lowest level of knowledge requires only rote behavior.

COMPREHENSION, the second level, refers to a type of understanding revealed by the learner's ability to make use of certain material or of an idea without necessarily seeing its fullest implications. Instances of comprehension can be seen in a student's ability to translate languages, interpret graphs, or extrapolate from a series of numbers.

APPLICATION involves the *use* of abstractions in particular and concrete situations, such as the application of scientific principles to concrete phenomena.

ANALYSIS requires the breaking down of a communication into its subcomponents so that the relationship among these elements is made clear as, for instance, when a student distinguishes facts from opinions in a newspaper article.

SYNTHESIS entails the putting together of elements to form a new, original entity. Such an ability is the planning of a unit of instruction for a particular teaching situation.

EVALUATION describes behaviors in which judgments are made about the value of material or methods used for given purposes. Criteria applied in making these judgments may be those determined by the student or those which are given to him by someone else. For example, judging the quality of written essays according to previously established criteria is an instance of evaluation behavior.

"There is mounting research to suggest that teachers often lavish more time and attention to critical thinking skills on high achieving students than or low achieving students. One need not be cynical about this fact; human nature is predictabl enough for teachers just as it is for you and me. But such inequalities ensure that expectations--high or low--become self-fulfilling prophesies . . ."

"Teachers will still need great courage to teach complex skills that are not measured by paper and pencil tests, because spending time on the sophisticated skills of critical thinking, both verbal and quantitative, risks students' scoring no better on trivial test questions. Without that risk, however, students will be deprived of the chance to struggle with thinking and writing. They may never learn that intellectual growth requires some risk and effort."

excerpts from: "Who Is Killing Excellence in American Schools?" by A. Graham Down, Ex. Dir. Council for Basic Education

Using the Resources of Art Museums

INTEGRATION AND JUDGEMENT GAMES ACTIVITY: Art Critic (15 to 20 minutes)

Learning Objectives: Students will -

1. verbalize their observations of two works of art
2. be able to discuss these works in a compare and contrast context
3. predict judgement by those who may hold different values and outlooks than themselves
4. explain their own preferences and analyze how they arrived at their conclusion.

Activity Sample:

1. Have the students go through the process of giving a verbal account of their visual perceptions of a pre-selected work of art.
2. Review with them some of the key descriptive words they gave in their inspection as a summation of the overall look and character of the art work.
3. Move to another pre-selected work which is from a different time period and of a different style.
4. Have the students use their observation skills to verbally describe this piece.
5. Then compare and contrast the look, subject and technique used in the second art work to that of the first. Use the first piece as the "standard of excellence."
6. Discuss what conclusions art critics of that day would come to, using the same standards for judgement as detailed in #5.
7. Then discuss the conclusions the students have come to about their own reactions to the two pieces. Discuss how their thoughts are similar and dissimilar to an art critic who judged by the standards detailed above.

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